

REMARKS

In response to a Final Office Action issued May 26, 2010, reconsideration of the application in light of the amendments and the following remarks is respectfully requested.

Amendments to the Specification

The specification has been objected to as failing to provide proper antecedent basis for the claimed subject matter. In particular, the Examiner indicated that antecedent basis needs to be provided for the cavity density claimed in claim 1.

Applicant acknowledges improper use of the word “density” in claim 1 of the previous amendment and appreciates the Examiner pointing out the error. There is no such thing as “cavity (pore) density” in the present invention. The inner wall parts 4 of the bearing body “have a higher *sintering density* than an inner wall parts 5” (Specification, paragraph [0045] of the published application) because the inner wall parts 4 have *smaller and fewer* gas cavities compared to the inner wall part 5. Accordingly, Applicant amended both claim 1 and the specification to more accurately describe this feature of the present invention.

In addition, paragraphs [0046] and [0075] of the specification of the published application have been amended to correct typographical errors. No new matter has been introduced.

Status of the Claims

Claims 1-10 are pending. Claims 7-9 were withdrawn from consideration. Claims 1-6 and 10 have been rejected. In this response, claims 1 and 10 have been amended. No new matter has been introduced.

Rejections under 35 U.S.C. § 102

Claims 1 and 10 have been rejected under 35 USC § 102(b) as being anticipated by Sekimoto (JP 5-071539). The rejection is respectfully traversed, and reconsideration is requested.

As discussed above, in an oil-impregnated sintered bearing of the present invention, the inner wall of the enlarged diameter parts has a higher ***sintering density*** than the inner wall of the journal part (Specification, paragraph [0045]). This high sintering density is formed because “cavities exposed on an inner surface of the ***enlarged diameter parts*** are ***smaller*** in size and ***fewer*** in number than those exposed on an inner surface of the journal part” (Claim 1, emphasis added). In general, when a large torque is exerted to rotate the shaft, the rotating shaft tends to be deflected because of the large shear load. In such a case, the lubricating oil weeped from relatively porous inner wall of the journal part is not impregnated into the relatively dense inner wall of the enlarged diameter part. Therefore, the lubricating oil remains between the rotating shaft and the enlarged diameter part and takes a roll in suppressing deviation of the rotation axis of the shaft by applying a reaction force to the shaft (Specification, paragraph [0049]).

In contrast, Sekimoto discloses “a body part 3 having several pores (cavities) having a diameter of about 20 to 100μm, and a tapered part 4 having several pores having a diameter of about 100 to 200μm” (abstract). Furthermore, Sekimoto states;

In this oil-impregnated sintered bearing, since the diameters of cavities formed in the taper part 4 are set larger than the diameters of cavities formed in the main body 3, the oil aspirated by the taper part 4 during the operation is effectively brought back to the main body 3 by capillary force without loss in the middle way (Sekimoto, paragraph [0015])

“The taper part” in Sekimoto corresponds to “the enlarged diameter parts” in the present invention. As seen from above, in the present invention, gas cavities on an inner surface of the enlarged parts are ***smaller and fewer*** compared to those on an inner surface of the journal part. Accordingly the size and distribution of cavities of the present invention are opposite to those found

in the prior art. This is because the goal of Sekimoto is to provide an oil impregnated sintered bearing from which less oil is scattered or leaks.

On the other hand, the structural feature of the present invention provides the enlarged diameter parts with a higher sintering density so that “the lubricating oil is not impregnated into the enlarger diameter parts and remains between the rotating shaft 2 and the enlarged diameter parts 3b and 3c to apply reaction forces to the rotating shaft 2” (Specification, paragraph [0049]). Accordingly, cavities (pores) of the present invention differ from prior art not only in their presence, but also in their function.

Thus, the cited prior art fails to teach each and every element of the rejected claims. Therefore, the rejection under 35 U.S.C. 102(b) has been overcome and should be withdrawn.

Rejections under 35 U.S.C. § 103

Claims 2, 3, 5 and 6 have been rejected under 35 USC § 103(a) as being unpatentable over Sekimoto (JP 5-071539) in view of Tanaka (US Pub 2002/0001420). Claim 4 has been rejected under 35 USC § 103(a) as being unpatentable over Sekimoto.

First, as discussed above, Sekimoto does not disclose all of the claimed subject matter recited in claim 1.

Furthermore, as for rejections of claims 2 and 3, the Examiner argues that “Tanaka teaches a bearing journal parts... wherein a line obliquely extending along an inclined surface of one enlarged diameter part is arranged *parallel to* a line... and a *distance between the lines* is substantially equal to the diameter of the rotating shaft” (Office Action, page 5, lines 9-13, emphasis added). Applicant respectfully disagrees.

Tanaka discloses a feature of supporting an inclined shaft, stating “[E]ven if a shaft inserted into the bearing 30 is inclined relative to the axis of the bearing 30, the shaft can be properly supported by one of the end surfaces 33” (Tanaka, paragraph [0042]). However, Tanaka does not

explicitly nor implicitly disclose any geographical relationship (e.g., “parallel to” or “distance between lines”) recited in claims 2 and 3. Tanaka also fails to teach explicitly or implicitly the presence of cavities in the inner surface of the bearing body as recited in claims 1 and 10.

Accordingly any combination of prior art would fail to provide all features disclosed in claims 1 and 10. Claims 2-6 directly or indirectly depend from claim 1 and thus, they should be unobvious as well.

Thus, Applicant respectfully requests that the rejections of claims under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

In view of the above amendments and remarks, Applicants believe the pending application and all pending claims are in condition for allowance, and earnestly solicit same.

If the Examiner feels that any remaining issues can be resolved by a Supplemental or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

The Commissioner is hereby authorized to charge any unpaid fees deemed required in connection with this submission, or to credit any overpayment, to Deposit Account No. 50-4570.

Dated: September 27, 2010

Respectfully submitted,

By 

Melvin C. Garner

Registration No.: 26,272

LEASON ELLIS LLP.

81 Main St., Suite 503

White Plains, New York 10601

(914) 288-0022

(914) 288-0023 (Fax)